



*"Working together
to save lives."*

WHAT'S HOT?

- March 16: statewide tornado drills to be held at 1:30 p.m. (alternate weather date is March 18).
- We had a record setting severe weather year in 2003.
- E-spotter continues to expand in popularity.
- Project Community Alert enters third and final year in the Kansas City area.

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Threatening Skies

Severe Weather Awareness Week set for March 15– 19, 2004

The National Weather Service, the Kansas Division of Emergency Management, and the Missouri State Emergency Management Agency have announced the annual Severe Weather Awareness week will be **March 15 – 19, 2004.**

Area-wide tornado safety drills from the Pleasant Hill NWS office will be conducted at **1:30 p.m. on March 16.** Should the weather be threatening on March 11, the drill will be postponed until Thursday, March 18.

Local warning sirens, NOAA Weather Radio, and the Emergency Alert System will be activated to



signal the start of the drill. Area residents should treat the drill as if it were an actual tornado emergency.

The purpose of the annual drill is to test everyone's readiness for life-threatening severe weather events such as tornadoes, flash floods, large hail, damaging winds, and lightning.

Northeast Kansas and northwestern Missouri saw record setting severe weather in 2003. Despite the devastation across much of the region, area residents responded appropriately to timely warnings and excellent coverage of these events.

Area residents are encouraged to use Severe Weather Awareness Week as their springboard into preparing for the 2004 severe weather season.

More information about Severe Weather Awareness Week can be found on the web at:

www.crh.noaa.gov/eax. □

Tornado record set in 2003

The 2003 severe weather season goes into the history books as one of the most violent in 26 years. A total of 31 tornadoes struck in 2003 across northeast Kansas

and northwestern Missouri.

The state of Missouri recorded a record 84 tornadoes, breaking the state's previous record of 79, set back in 1973. An average year brings 26

*By Mike Hudson,
Warning Coordination
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tornadoes to Missouri.

Kansans experienced 91 tornadoes statewide in 2003, well above the average of 52. The eight Kansas tornado fatalities in 2003 represents the
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“
The tornadoes which struck in the Kansas City metropolitan area took two lives, left nearly 50 injured, and produced nearly \$150 million in damage.
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Tornado records set in 2004

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state's highest total since 1991.

Severe thunderstorms struck in northern Missouri on April 30. Four tornadoes touched down from the Bethany area, east to near Unionville and Lancaster. These storms also produced very large hail up to baseball size.

The most violent tornado day in 26 years occurred on May 4. A total of nine tornadoes struck in or near the Kansas City metropolitan area between 3:30 p.m. and 7 p.m. Violent tornadoes of F4 intensity struck in

Wyandotte County, as well as in Clay County in the cities of Gladstone and Kansas City. These two tornadoes were part of a family of four that started in Leavenworth County southwest of Basehor, and ended in Liberty.

The tornadoes which struck in the Kansas City metropolitan area took two lives, left nearly 50 injured, and produced nearly \$150 million in damage.

Another family of tornadoes swarmed across Miami, Cass, Johnson, and Pettis Counties to the south and east of Kansas City. The strongest of these

tornadoes touched down near Garden City.

Tornadic activity returned to the region on May 6. This activity was confined to areas from near Whiteman Air Force Base, east to near Sedalia. This tornado produced minor damage to a carport and to crops, and only missed the city of Sedalia by a few miles.

May 8 brought another outbreak of intense tornadoes to locations near Kansas City, including a tornado which struck Lawrence, Kansas. This tornado was on a track to nearly parallel the May 4 tornado into Kansas City,

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Threatening Skies

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We appreciate your comments and suggestions.

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E-Spotter continues to grow in popularity

*By Mike Hudson,
 Warning Coordination Meteorologist*

Spotters remain a vital team member in warning the public about impending severe weather. This fact was very clear during the week of May 4-10, as spotters provided essential life-saving information to people in the path of tornadic thunderstorms.

The information gleaned from underneath a severe thunderstorm helps to confirm the threat of dangerous weather. Your report makes it easier for people in the storm's path to assess their personal risk and take appropriate action.

Storm spotter reports



are best shared with local officials first, who then ultimately relay your report to the National Weather Service via the phone or amateur radio. These means remain just as vital today as ever.

The NWS "E-Spotter" program will continue into the 2004 storm season. Over 100 local spotters have already signed up for an account, to use the Inter-

net to relay information direct to the NWS.

Interested in becoming an E-Spotter? **To sign up to be an E-Spotter, just point your browser to www.crh.noaa.gov/espotter and sign up!** You must have completed an NWS storm spotter training session within the past two years to be granted access to the E-spotter program.

No matter the means of communication, timely and accurate storm information always adds to the value of a warning message. We hope the use of all available channels of communication will provide you with the best means possible for

Personal responsibility and weather safety

By Mike Hudson,
Warning Coordination Meteorologist

As the spring season draws near, so does the threat of severe weather for Kansas and Missouri. Residents of the Midwest are no strangers to the dangers that weather presents in spring and summer months.

The National Weather Service issues watches and warnings when severe weather threatens your area. Most residents receive these warnings from the media, or perhaps locally through the use of local warning capabilities such as sirens or cable

television override.

Ultimately, it is the responsibility of each citizen to take action necessary to save his or her life. Unfortunately, the failure to take protective action in a timely manner results in many weather related fatalities each year.

The greatest challenge with this responsibility is to ensure you have the means to receive warnings both day and night, and to also have a plan in place before you need it. ***Have you planned your response to a tornado for when you are at home? How***

about at work? Does your family have a plan of action to meet at a specified location after a weather disaster?

The best means to receive important weather alerts, either day or night, is to purchase an All-Hazards Weather Radio receiver for your home. These receivers act as a "smoke detector for storms", and can awaken you at night to a potentially dangerous weather situation. Weather radio receivers are available at area electronics stores, and in the Kansas City and Sedalia areas, through Project Community Alert. □

Ways that you can prepare for a weather disaster

- **Check for hazards in the yard.** Dead or rotting trees and branches can fall during a severe thunderstorm and cause injury and damage.
- **Make sure that all family members know how to respond after a thunderstorm.** Teach family members how and when to turn off gas, electricity and water.
- **Teach children** how and when to call 911, police and fire departments, and how to tune into a radio station for

emergency information. *(Better yet, get a NOAA Weather Radio!)*

- **Develop an emergency communication plan.** In case family members are separated from one another during a thunderstorm (a real possibility during the day when adults are at work and children are at school), have a plan for getting back together.
- **Ask an out-of-state relative or friend to serve as the "family contact".** After a disaster, it's often easier to call long distance. Make sure everyone knows the name, address, and phone number of the contact person.

Have disaster supplies on hand

- **Flashlight with extra batteries.**
- **Portable, battery-operated radio.**
- **First-aid kit and any essential medicines.**
- **Non-perishable food and water, and a can opener.**
- **Cash and credit cards.**
- **Sturdy shoes.**

Project Community Alert enters its third year

By Mike Hudson,
Warning Coordination Meteorologist

The National Weather Service disburses its most current forecasts, warnings, and watches through NOAA Weather Radio 24 hours a day, seven days a week.

NOAA Weather Radio can alert listeners to dangerous weather situations in areas as large as states, or as small as specific counties within the listening area. Most importantly, specially equipped receivers are

activated by tone alert, to warn you of hazards day and night.

Early warning of hazardous conditions is a critical component to every community's preparedness plan.

Kansas City area emergency managers, working together as a group called the Metropolitan Emergency Managers Committee (MEMC) felt so strongly in this component that they partnered in 2002 with Price Chopper grocers, and Midland radio, to launch Project

Community Alert (PCA for short).

In the program's first two years, over 20,000 NOAA Weather Radio receivers have been sold in the Metro KC area. PCA has also expanded into the Sedalia area, where around 6,000 receivers have been distributed.

In late 2003, the MEMC made a decision to make PCA available to any jurisdiction across the United States that wanted the ability to make an

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How does your National Weather Service deliver severe weather information?



The National Weather Service uses specific terminology to relay the weather threat to the public in the fastest way possible. In the spring and summer, there are a variety of watches, warnings and statements you need to understand in order to be prepared. Keep these in mind as we enter the 2004 Severe Weather Season:

TORNADO WATCH

Means that conditions are favorable for tornadoes to develop. It is normally issued for four to six hours, and can include many counties. If you are in or near the Tornado Watch area, stay informed with NOAA Weather Radio, commercial radio, or television.

TORNADO WARNING

Means that a tornado has been sighted, or a developing tornado is reported by trained spotters or indicated on Doppler radar. A warning is typically issued for a small area for less than an hour. If a Tornado Warning is issued for your area, take cover right away!

SEVERE THUNDERSTORM WATCH

Means that conditions are favorable for thunderstorms to produce large hail or damaging winds. These watches are normally issued for four to six hours at a time, and for a large number of counties. Once again, if

you are in or near the Severe Thunderstorm Watch area, stay informed with NOAA Weather Radio, commercial radio, or television.

SEVERE THUNDERSTORM WARNING

Means that a severe thunderstorm has been detected by Doppler radar, or by a trained spotter. Severe thunderstorms produce wind gusts to 58 mph or stronger, or hail 3/4 inch in diameter or larger. Take cover quickly if a severe thunderstorm approaches you, or if one is reported in your area.

SEVERE WEATHER

STATEMENT

The Severe Weather Statement is a follow-up to Tornado and Severe Thunderstorm Warnings. These statements inform you of the current status of a tornado or severe thunderstorm. In addition, it gives the history of a storm, where it is moving, and who it will affect. This NWS product is also used to cancel or expire a warning.

FLOOD WATCH

This is issued when heavy rain may develop and result in flash flooding in or near the watch area. A Flood Watch will also be issued if ground, river/stream conditions, or radar surveillance indicate flash flooding is possible, but not imminent within a designated area.

FLASH FLOOD WARNING

Means flash flooding has developed or is imminent in the area. When a Flash Flood Warning is issued, move to higher ground immediately!

FLASH FLOOD STATEMENT

Flash Flood Statements are used to continue, expire or cancel Flash Flood Warnings. These statements provide additional or current information, and to keep you informed of the flooding status.

SPECIAL WEATHER

STATEMENT

For severe weather purposes, the Special Weather Statement is applied when a Tornado or Severe Thunderstorm Watch is either issued or canceled. In fact, it can be issued to cancel part of a watch area, or the entire watch area when severe weather is no longer expected.

HAZARDOUS WEATHER OUTLOOK

A product issued by the NWS to discuss the significant weather of the day, and also over the next seven days. It describes potential weather hazards for an area, and is especially created for trained spotters and Emergency Managers. The Hazardous Weather Outlook will detail the type of severe weather expected (if any), timing, and expected location of the severe weather. □

NWS Terms you should know:

- TORNADO WATCH
- TORNADO WARNING
- SEVERE THUNDERSTORM WATCH
- SEVERE THUNDER STORM WARNING
- FLOOD WATCH
- FLASH FLOOD WARNING
- FLASH FLOOD STATEMENT
- SEVERE WEATHER STATEMENT
- HAZARDOUS WEATHER OUTLOOK
- SPECIAL WEATHER STATEMENT



WIND SPEED ESTIMATE	
25-31 mph	Large branches in motion; whistling heard in telephone wires
32-38 mph	Whole trees in motion; inconvenience felt walking against the wind
39-54 mph	Twigs break off trees; wind generally impedes progress
55-72 mph	Damage to chimneys and TV antennas; pushes over shallow rooted trees
73-112 mph	Peels surfaces off roofs; windows broken; light mobile homes pushed or overturned; moving cars pushed off road
113-157 mph	Roofs torn off houses; cars lifted off ground

Tornado Safety

- **IN HOMES OR SMALL BUILDINGS:** Go to the basement (if available) or to an interior room on the lowest floor, such as a closet or bathroom. Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls, or an inside hallway. Wrap yourself in overcoats or blankets to protect yourself from flying debris.
- **IN SCHOOLS, HOSPITALS, FACTORIES, OR SHOPPING CENTERS:** Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums and warehouses. Crouch down and cover your head. Don't take shelter in halls that open to the south or the west. Centrally-located stairwells are good shelter.
- **IN HIGH-RISE BUILDINGS:** Go to interior small rooms or halls. Stay away from exterior walls or glassy areas.
- **IN CARS OR MOBILE HOMES: ABANDON THEM IMMEDIATELY!** Most deaths occur in cars and mobile homes. If you are in either of those locations, leave them and go to a substantial structure or designated tornado shelter.
- **IF NO SUITABLE STRUCTURE IS NEARBY:** Lie flat in the nearest ditch or depression and use your hands to cover your head. Be alert for flash floods.
- **DURING A TORNADO:** Absolutely avoid buildings with large free-span roofs. Stay away from west and south walls. Remember, seek shelter on the lowest level, go to the smallest room, and center part of the building.

Heat Wave Safety

- **SLOW DOWN:** Strenuous activities should be reduced, eliminated, or rescheduled to the coolest time of the day. Individuals at risk should stay in the coolest available place, not necessarily indoors.
- **DRESS FOR SUMMER:** Lightweight, light-colored clothing reflects heat and sunlight, and helps your body maintain normal temperatures.
- **WATCH WHAT YOU EAT:** Foods (like proteins) that increase metabolic heat production also increase water loss.
- **DRINK PLENTY OF WATER:** Or other nonalcoholic fluids. Your body needs water to keep cool. Drink plenty of fluids even if you don't feel thirsty. Persons who (1) Have epilepsy or heart, kidney, or liver disease, (2) Are on fluid restrictive diets, or (3) Have a problem with fluid retention should consult a physician before increasing their consumption of fluids.
- **MONITOR SALT INTAKE:** Do not take salt tablets unless specified by a physician. Persons on salt restrictive diets should consult a physician before increasing their salt intake.
- **REDUCE EXPOSURE:** Spend more time in air-conditioned places. Air conditioning in homes and other buildings markedly reduces danger from the heat. If you cannot afford an air conditioner, spending some time each day (during hot weather) in an air conditioned environment affords some protection.
- **DO NOT DRINK ALCOHOLIC BEVERAGES:** It can impair your ability to make rational decisions.
- **PETS:** Animals can become ill or die if exposed to extreme heat for long periods of time. Make sure they are given shade and plenty of fluids. □

Extreme Heat: Exposed

By Mike Hudson,
Warning Coordination Meteorologist

The Midwest is exposed to Mother Nature's worst each year. Temperatures in the Midwest can fluctuate to great extremes. In the summer months, temperatures commonly climb into the 90's, and when combined with extreme humidity, can create heat indices well over 100.

Tornadoes and severe thunderstorms receive the most publicity, but *did you know that most weather related fatalities in the past few years were not associated with severe*

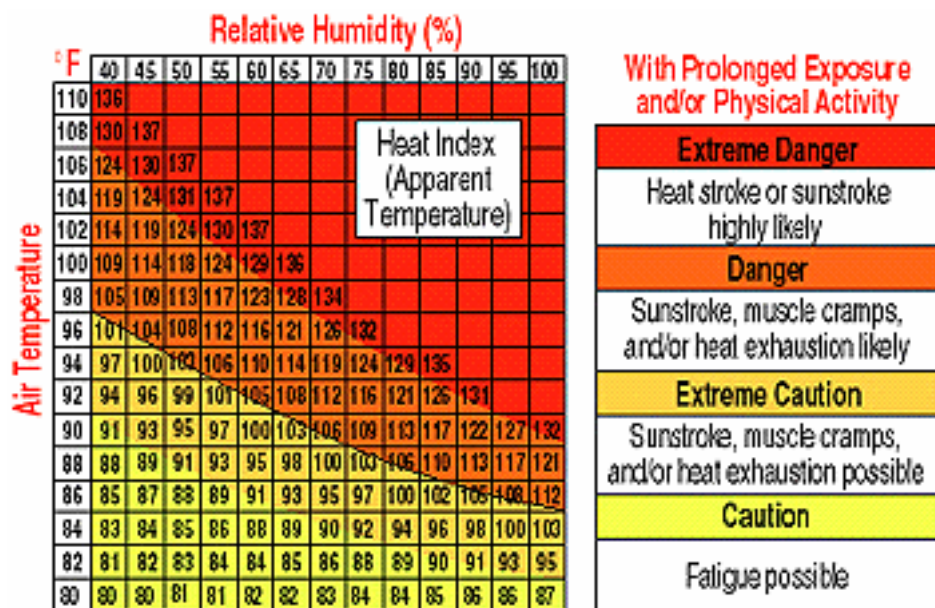
storms, but with extreme temperatures?

On an average year in the United States, extreme heat will cause more than 175 deaths. In 2002, extreme heat claimed the lives of 16 people in Missouri. That number does not take into account the number of deaths that are accelerated by heat exposure.

As a means of lessening the threat, the National Weather Service issues advisories and warnings when excessive heat and humidity is expected. The NWS uses a defined

"Heat Index" (HI), which is an accurate measure of how hot it really feels when the relative humidity is high. (See diagram below.)

The NWS will initiate alert procedures (advisories or warnings) when the (HI) is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. □



EXCESSIVE HEAT

WARNING:

If the Heat Index (HI) equals or exceeds 115 degrees for three hours or longer, or 105 degrees for three consecutive days.

HEAT ADVISORY:

If the HI reach 105 degrees for three hours or more.

Hot terms you should know

- **HEAT WAVE:** Prolonged period of excessive heat, often combined with excessive humidity.
- **HEAT INDEX:** A number in degrees Fahrenheit (F) that tells how hot it really feels when relative humidity is added to the actual air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.
- **HEAT CRAMPS:** Heat cramps are muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with the heat.
- **HEAT EXHAUSTION:** Heat exhaustion typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs. This results in a form of mild shock. If not treated, the victim's condition will worsen. Body temperature will keep rising and the victim may suffer heat stroke.
- **HEAT STROKE:** Heat stroke is life-threatening. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Project Community Alert enters its third year



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at-cost NOAA Weather Radio purchase program available for their residents.

Are you a local emergency manager or public safety official, and would like more information on bringing PCA to your community? You can find more information on the expanding PCA program by checking out www.pcausa.org, or by sending a letter to PCAUSA C/O Marni McCulloch, 111 S. Cherry St., Suite 100, Olathe, KS 66061.

NOAA Weather Radio receivers are also available in many other retail outlets, as well as on the Internet. The key to a good receiver is finding one equipped with S.A.M.E. technology, and one that has battery-backup capability. □



Hail

Hail rarely kills people, but it can become a killer if precautions are not taken. In May of 1986, China experienced such intense hail that it killed 100 people, injured 9,000, and destroyed 35,000 homes.

Thunderstorm Dangers

Every thunderstorm produces lightning, which kills more people each year than tornadoes. Heavy rain from thunderstorms can lead to flash flooding: the number one thunderstorm killer. Strong winds, hail, and tornadoes are also dangers associated with some thunderstorms.

Flash Floods/Floods are the number ONE thunderstorm killer, with nearly 140 fatalities nationwide each year. Most flash flood deaths occur at night and

NOAA Weather Radio success stories

On numerous occasions, NOAA Weather Radio has alerted the public to severe, life-threatening weather conditions. NOAA Weather Radio success stories include:

** A girl's basketball game in the Beebe High School gymnasium was suddenly halted at half time after the town's school superintendent heard a tornado warning issued by the National Weather Service. NOAA Weather Radio's real-time updates indicated the tornado was moving in the direction of the school. Thirty minutes after the game was called, an F-3 tornado nearly leveled the gym. No one was injured*

because the facility was vacant.

** During the May 3, 1999, tornado outbreak in Oklahoma and Kansas, a supervisor at Norland Plastics in Haysville, Kansas, saved more than 80 lives by responding to National Weather Service warnings heard on the plant's NOAA Weather Radio receiver. Shortly after instructing employees to move to the basement, a twister devastated the entire building. No one was hurt in what could have been a disaster.*

More information on NOAA Weather Radio can be found on the Pleasant Hill web site, or at <http://weather.gov>. □

By Mike Hudson

Warning Coordination Meteorologist

when people become trapped in automobiles.

Lightning occurs with ALL thunderstorms, and on average causes 93 deaths and 300 injuries nationwide each year. Lightning causes \$100 million in damage to property and forests annually.

Straight-Line Winds are responsible for most thunderstorm wind damage. Winds can exceed 100 mph! One type of straight-line wind, the microburst, can cause damage equivalent to a strong tornado, and can be

extremely dangerous to aviation. During the summer in western states, thunderstorms often produce little rain, but very strong wind gusts and dust storms.

Large Hail causes nearly \$2 billion annually in damage to property and crops.

Tornadoes are nature's most violent storms, where winds can exceed 300 mph. Tornadoes result in an average of 80 deaths and 1,500 injuries nationwide each year. □

Tornado records set in 2003

(Continued from page 2...)

but its parent storm dissipated over Lawrence.

Another intense thunderstorm affected areas from northwest of Mound City, Kansas, east into Missouri on May 8. This storm produced an F2 tornado in western Linn County, Kansas. As it moved east into Missouri, the storm pummeled Adrian, Missouri with 4" diameter hail! It eventually produced two weak tornadoes in Johnson County, Missouri.

Tornadoes struck near Freeman, Missouri, and just northeast of Higginsville in Lafayette County. The latter tornado reached an F2 intensity near Corder, Missouri.

May 10 proved to be the last tornado day in a week filled with violent weather. Tornadoes struck in mostly rural areas of Mercer, Putman, and Macon Counties. Several homes were damaged in these areas. □

Lightning Kills: Play it Safe!

Lightning is one of nature's most awe inspiring and dangerous phenomenon.

The average lightning flash could light a 100-watt light bulb for more than three months! The temperature of a lightning bolt may reach **50,000 degrees Fahrenheit** which is hotter than the surface of the sun!

On average, lightning kills one person in Kansas and Missouri each year, and about 73 nationwide. Lightning remains one of the most deadly weather phenomena in the United States, and it can occur almost anywhere throughout the entire year.

Many people incur injuries or are killed due to misinformation and inappropriate behavior during thunderstorms. A few simple precautions can reduce many of the dangers posed by lightning. **Remember, Lightning Kills, Play it Safe!**

AVOID being in or near:

High places and open fields, isolated trees, unprotected gazebos, rain or picnic shelters, baseball

dugouts, communication towers, flagpoles, light poles, bleachers (metal or wood), metal fences, convertibles, golf carts, water (ocean, lakes, swimming pools, rivers, etc.).

When inside a building AVOID:

Use of the telephone or computer, taking a shower, washing your hands, doing dishes, or any contact with conductive surfaces with exposure to the outside such as metal door or window frames, electrical wiring, telephone wiring, cable TV wiring, plumbing, etc.

If driving:

Stay in your car! An enclosed automobile offers reasonably good protection from lightning, as long as you don't touch metal.

Lightning is a year-round threat. To learn more about lightning safety, and for additional resources for promoting lightning safety in your community, check out **www.lightningsafety.noaa.gov**. □

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"Working together to save lives."